Configuration Overview

hp StorageWorks Modular Smart Array 1500 cs

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HP StorageWorks MSA1500 cs
Configuration Overview
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Configuration Planning Worksheet

Use this worksheet to prepare for your MSA1500 cs installation.

This checklist supports most MSA1500 cs configurations—from the simple to the relatively complex. If your configuration is simple, you need only some of the items on checklist. If your configuration is more complex, you need most of the items.

Note: This worksheet and the companion worksheets in the *MSA1500 cs Installation Guide* are not prerequisites for installing your MSA1500 cs, but some of the information on the worksheets is required for zoning, multi-pathing, future configuration changes, and troubleshooting purposes.

1
Check the boxes for the items you need

First, place a check in all of the boxes on the left side of the checklist — these items are required for all MSA1500 cs configurations.

Second, place a check next to any additional items needed for your configuration, such as "Items for Multi-Path Configurations," "Items for Clustered Servers," and "Possible Additional Items."

2
Record information about the items

Read through the checklist and write down information about the items needed for your configuration. Record as much information as possible.

Items marked with an asterisk ("*") are required.

Note: You do not need to complete the entire worksheet at this time. Some information is easier to obtain during installation of your MSA1500 cs.

Additional Resources about the MSA1500 cs and Storage Area Networks (SANs)

MSA1500 cs web site:

http://www.hp.com/go/msa1500cs

Go to the MSA1500 cs web site for the most current information about your MSA1500 cs.

Navigate through the site to obtain the following reference documents:

- *MSA1500 cs QuickSpecs*
- *MSA1500 cs Compatibility Guide*
- *MSA1500 cs Release Notes*

Secure Path web site:

http://www.hp.com/go/securepath

Go to the Secure Path web site for information about Secure Path multi-pathing software, used in Windows, Linux, and NetWare environments.

SAN Infrastructure web site:

http://www.hp.com/go/SAN

Go to the SAN Infrastructure web site for information about HP SANs, switches, and HBAs.

Note: In addition to the other information available on the SAN web site, navigate to the *SAN Design Guide* and print out a hardcopy of this guide to review.

High Availability web site:

http://h18000.www1.hp.com/solutions/enterprise/highavailability/index.html

Go to the High Availability web site for information about clustering.

3
Verify that the items are supported

After you have indicated your configuration type and have obtained the items you need to install your MSA1500 cs, verify that the items you plan to use are approved for use with the MSA1500 cs in your operating system environment.

Go to the MSA1500 cs web site: http://www.hp.com/go/msa1500cs.

Read the *MSA1500 cs Compatibility Guide* on the **Technical Documentation** page of the MSA1500 cs web site to confirm compatibility.

During this process, you may need to obtain some new items and adjust your plans.

Proceed with installing your MSA1500 cs only after obtaining all of the necessary hardware and software components and verifying that the models and versions you plan to use are supported.

4
Read the other side of this poster

Now that you have gathered all of the items required for your configuration, please read the other side of this poster for an overview of the installation process and some best practices.

My MSA1500 cs Configuration

❑ **Single-path, non-clustered** ❑ **Single-path, clustered** ❑ **Multi-path, non-clustered** ❑ **Multi-path, clustered**

❑ **MSA1500 cs**

MSA1500 cs Serial number _____
Controller WWNN _____
Controller WWPN _____
Controller firmware version _____
* MSA1500 cs Support Software CD version _____

❑ ***Redundant Controller for Multi-Path Configurations***

Controller WWNN _____
Controller WWPN _____

❑ ***Reduntant Fibre Channel I/O Module for Multi-Path Configurations***

❑ **Storage Enclosures**, quantity and model _____

❑ **Fibre Channel Interconnect Device (Switch)**

* Device make and model _____
Switch firmware version _____
Switch IP address _____
Switch WWNN _____
Switch WWPN _____

❑ ***Additional Interconnect Device for Multi-Path Configurations***

Device make and model (same as the primary device)
Switch firmware version (same as the primary device)
Switch IP address _____
Switch WWNN _____
Switch WWPN _____

❑ **Server**

* Server make and model _____
* Operating system & version _____
* Operating system service pack / errata _____
Server name _____
* HBA model _____
HBA slot location _____
* HBA driver version _____
* HBA firmware version _____
HBA boot BIOS firmware (boot from SAN) _____
HBA WWNN _____
HBA WWPN _____

❑ ***Additional Server-Related Items for Multi-Path Configurations***

Secure Path software version _____
2nd HBA model (same as the primary HBA)
2nd HBA slot location _____
2nd HBA firmware version (same as the primary HBA)
2nd HBA WWNN _____
2nd HBA WWPN _____

❑ ***Additional Server-Related Items for Clustered Servers***

Clustering software version _____
Cluster cabling _____

❑ **Fibre Cables**, for MSA1500 cs, interconnect device, and HBA connections

❑ **SCSI Cables**, for storage enclosure connections

❑ **Hard Drives**

Possible Additional Items

❑ ***Additional SCSI I/O Modules,*** *quantity* _____

❑ ***Additional Server***

Server make and model _____
Operating sytem & version _____
Operating sytem service pack / errata _____
Server name _____
HBA model _____
HBA slot location _____
HBA driver version _____
HBA firmware version _____
HBA boot BIOS firmware (boot from SAN) _____
HBA WWNN _____
HBA WWPN _____

❑ ***Additional Server-Related Items for Multi-Path Configurations***

Secure Path software version _____
2nd HBA make and model (same as the primary HBA)
2nd HBA slot location _____
2nd HBA firmware version (same as the primary HBA)
2nd HBA WWNN _____
2nd HBA WWPN _____

❑ ***Additional Server-Related Items for Clustered Servers***

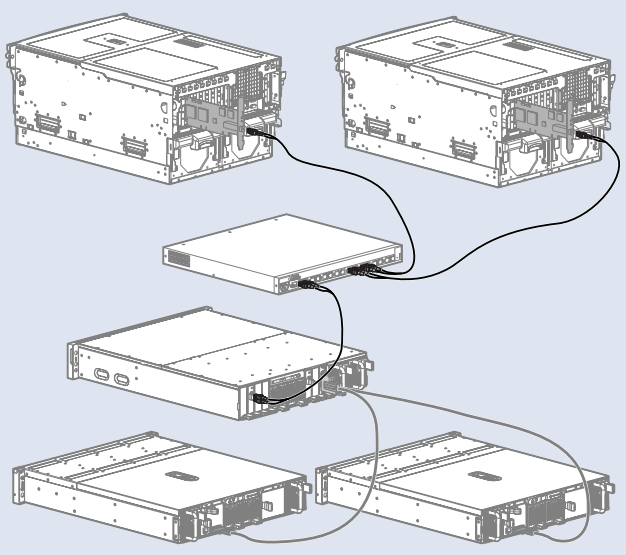
Clustering software version _____
Cluster cabling _____

❑ ***Additional Interconnect Device***

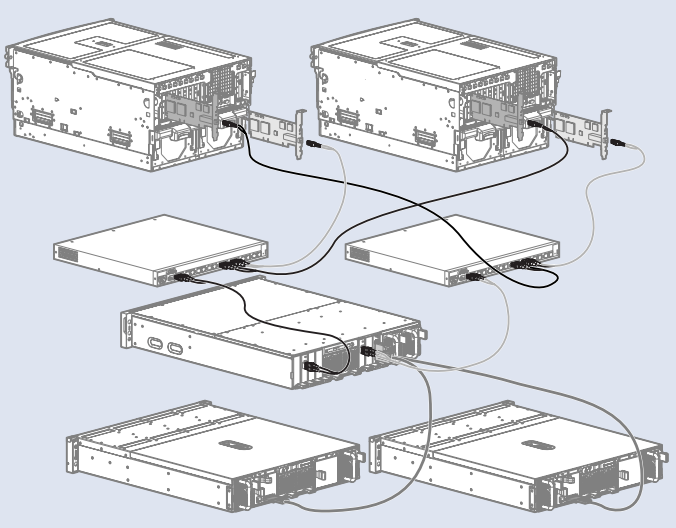
Device make and model _____
Switch firmware version _____
Switch IP address _____
Switch WWNN _____
Switch WWPN _____

❑ ***Another Additional Interconnect Device***

Device make and model _____
Switch firmware version _____
Switch IP address _____
Switch WWNN _____
Switch WWPN _____



Sample single-path MSA 1500 cs configuration with two standalone servers



Sample multi-path MSA1500 cs configuration

Installation Overview Master Checklist

This section introduces the steps of installing an MSA1500 cs and may be used as a master checklist, but use the *MSA1500 cs Installation Guide* to install your MSA1500 cs.

1 Review and confirm your plans

Before installing your MSA1500 cs, HP recommends thoroughly researching, studying, and establishing an installation and configuration plan for your environment.

Complete the Configuration Planning Worksheet on the opposite side of this poster and go to the Internet for the most current MSA1500 cs and SAN information. Plan your storage configuration and be sure to review the MSA1500 cs installation and configuration best practices.

Installation Guide section: *Step 1: Review and Confirm your Plans*

2 Prepare your site

Before installing your MSA1500 cs, select a location that meets the environmental standards described in the *MSA1500 cs Installation Guide*.

Approved environments include adequate structural support, physical space, ventillation, and power.

Installation Guide section: *Step 2: Prepare your Site*

3 Install MSA1500 cs option kits

If your plans include adding any of the available option kits for the MSA1500 cs, install them now. It is easier to install these options before installing the MSA1500 cs in the rack.

Available option kits include additional controller cache, additional SCSI I/O modules, redundant controller, and redundant Fibre Channel I/O module.

Installation Guide section: *Step 3: Install MSA1500 cs Option Kits*

4 Rack the MSA1500 cs and the storage enclosures

The MSA1500 cs and its supported storage enclosures can be installed into most standard server racks.

After installing the MSA1500 cs and the storage enclosures in the rack, you can install the hard drives into the enclosures.

Installation Guide section: *Step 4: Rack the MSA1500 cs and the Storage Enclosures*

5 Install the hard drives

After the MSA 1500 cs and the storage enclosures are secured in the rack, install your hard drives in the drive bays of the enclosures.

Installation Guide section: *Step 5: Install the Hard Drives*

6 Prepare your servers

Depending on your plans, you will connect your MSA1500 cs to either a new or an existing server. In both scenarios, it is important that your server is operating properly before adding any MSA1500 cs specific components to it.

Installation Guide section: *Step 6: Prepare your Servers*

7 Install the HBA in your servers

Because the MSA1500 cs can be deployed into a variety of operating system environments and configurations (including single-path and multi-path), specific Host Bus Adapters (HBAs) are required for the different deployments.

Obtain the correct HBA for your environment and install it into each server that will access the MSA1500 cs.

Note: Be sure to follow the procedure as detailed in the *HP StorageWorks MSA1500 cs Installation Guide*

Installation Guide section: *Step 7: Install the HBA in your Servers*

8 Prepare your Switches

In an existing SAN, the switches are already set up and configured, but if you are deploying your MSA1500 cs into a new SAN, you need to install and configure your Fibre Channel interconnect devices at this time.

Installation Guide section: *Step 8: Prepare your Switches*

9 Connect the cables

After preparing your SAN and installing the MSA1500 cs, the storage enclosures, and the hard drives, you may connect all of the cables to the MSA1500 cs.

Connect the SCSI cables, the Fibre Channel cables, and the power cords.

Installation Guide section: *Step 9: Connect the Cables*

10 Power on your components

After the MSA1500 cs is installed and connected to the SAN, you may power on all of the devices in the SAN.

Note: Be sure to follow the procedure as detailed in the *HP StorageWorks MSA1500 cs Installation Guide*.

Installation Guide section: *Step 10: Power on your MSA1500 cs*:

11 Configure your MSA1500 cs

After the servers and interconnect devices are set up and the MSA1500 cs is physically installed, connected, and powered on, you may configure your MSA1500 cs and the storage.

Note: Be sure to follow the procedure as detailed in the *HP StorageWorks MSA1500 cs Installation Guide*.

Installation Guide section: *Step 11: Configure your MSA1500 cs*

MSA1500 cs Installation and Configuration Best Practices

Consider the following when installing and configuring your MSA1500 cs:

- Use the Configuration Planning Worksheet on the opposite side of this poster to help you gather all of the items required for installing your MSA1500 cs.
- Go to the MSA1500 cs web site at http://www.hp.com/go/msa1500cs to confirm your plans and review current information about the MSA1500 cs.
- Record infomation about your system on the provided worksheets on the opposite side of this poster or in the installation guide.
- Install your MSA1500 cs in the sequence listed in this poster and in the installation guide.

  Several installation and configuration steps include dependencies; if you deviate from the listed sequence, you may have to un-install and then re-install your MSA1500 cs .
- Use the *HP StorageWorks MSA1500 cs Installation Guide* to install and configure your MSA1500 cs.

  Details are available in the guide that are not provided in this Overview.
- When planning your arrays:
  - Customize the RAID level and striping method to the type of data that will be stored on the array.
  - Set the drive rebuild priority of the array to “high” to minimize exposure during a drive failure.
  - Optimize performance and redundancy by striping the drives in the array across separate storage enclosures on different SCSI buses, especially in mirrored environments using RAID 1 or RAID 1+0.

  Note: Depending on the number of drives included in an array, the ACU automatically assumes a default RAID type of ADG, which maximizes fault tolerance and storage efficiency, but at a significant cost of I/O performance. For comparable fault tolerance but higher performance, consider using RAID 1+0.
- If your environment includes multiple-servers, consider designating one of the servers as a management server to centralize your management tasks.

  It is on this server that you install management software such as the ACU and perform SAN management tasks.
- Before installing your MSA1500 cs, consider redundancies of power, storage, and data paths.

  To provide redundant power, be sure to plug the two power supplies on the MSA1500 cs into separate Uninterruptable Power Supplies (UPS) on separate power sources. If you have only one UPS, maintain separate power paths by plugging one MSA1500 cs power supply to the UPS on one power source and the other MSA1500 cs power supply to a separate power source.

  To provide redundant storage, configure your arrays using fault-tolerant RAID levels and striping methods.

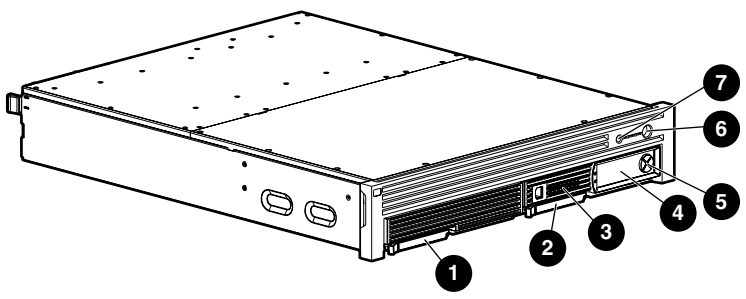
  To provide redundant data paths, you must include two isolated Fibre Channel fabrics and the associated hardware and software components in the configuration. (For example, you must include two controllers, two interconnect devices, and two HBAs in each server. Environments using Secure Path and the ACU must have the software installed on each server.)
- When installing or updating the HBA drivers, always use the drivers and the installation scripts provided on the MSA1500 cs Support Software CD or the MSA1500 cs web site.

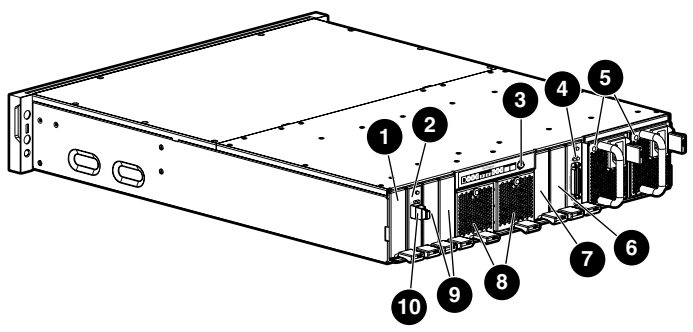
  Your MSA1500 cs will not operate as intended if you update your HBA driver manually or use drivers obtained from the HBA manufacturer.
- After configuring the storage, remember to:
  - Identify the operating system of each HBA with access to the storage.
  - Verify that each HBA in each server has been granted access to the storage.
  - Control access to the storage by indicating which HBA can access which array.
- If you are installing the MSA1500 cs in a multi-path environment that requires Secure Path software, be sure to follow every server reboot prompt.

  Failure to acknowledge a server reboot may result in your path redundancy not functioning properly. Be sure to reboot your server after the copy from the source media to the server is completed and after the redundancy driver is attached to the arrays.

MSA1500 cs Features

Two views of the MSA1500 cs are shown, with the key components identified.





MSA1500 cs (Front View)

Reference #	Identifier
❶	Redundant controller slot blank
❷	Primary controller
❸	Status indicators
❹	Display panel
❺	Display push buttons
❻	Power switch
❼	Unit ID button and indicator

MSA1500 cs (Rear View)

Reference #	Identifier
❶	Reserved for future use
❷	Primary Fibre Channel I/O module
❸	System information panel
❹	SCSI I/O module, bus 0
❺	Power supplies
❻	Additional SCSI I/O module slot, bus 1
❼	Redundant Fibre Channel I/O module slot
❽	Fan modules
❾	Additional SCSI I/O module slots, buses 2 and 3
❿	2-Gb Small Form Factor Pluggable (SFP) Transceiver